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Report on FCC Docket 99-87



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RF Spectrum Refarming & FCC Mandated Requirements for Narrowband Migration

Rev 1.1

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Executive Summary

In an on going debate over the management of narrowband migration in the VHF (150 – 170 MHz) and UHF (421 – 512 MHz) bands the FCC recently issued new rules and regulations for how those frequencies can be licensed and utilized. Within only a few weeks after publishing the new rules to the federal register the FCC issued a “Stay” against the January 13, 2004 licensing deadline which would have prohibited the acceptance of applications for new “wideband” licenses in the VHF/UHF bands.

Applications for new 25/30 kHz channels will continue to be accepted by the FCC after the January 13, 2004 deadline until the commission re-issues another licensing deadline anticipated in late 2004. The temporary “Stay” was granted at the request of APCO, and several other public safety organizations, to allow time for public comment and review of the petitions for reconsideration already received by the FCC. All new rules, regulations, and mandated migration dates in the [2nd Report & Order WT Docket 99-87](#) are still in force with the exception of the January 13, 2004 licensing deadline which is temporarily under a “Stay.” The FCC is expected to rule on the reconsideration petitions by late 2004.

Background

More than ten years ago the FCC recognized an approaching problem with regard to limited radio spectrum and an increasing demand for radio channel resources. By the early 1980's demand for wireless services started to outpace available RF spectrum. The FCC responded with higher technical acceptance standards used in the design and manufacture of new radio equipment. These higher standards required that new wireless equipment, manufactured after 1997, be capable of operating at reduced bandwidths in order to facilitate the FCC's plan to split existing channels and significantly increase the number of available radio channels for wireless operations.

Encouraged by industry leaders, and public safety groups, the FCC drafted the original “refarming” docket without mandatory migration dates.

The Commission has adopted a regulatory strategy which seeks to promote more efficient use of the existing private land mobile radio (PLMR) spectrum allocations below 800 MHz.

In order to achieve its objective of increasing the efficiency of the PLMR frequency bands, the Commission has adopted the following changes to its rules:

Established a narrowband (NB) channel plan based on current channel centers. Generally, channels will be listed every 7.5 kHz in the 150-174 MHz VHF band and every 6.25 kHz in the 421-430, 450-470, and 470-512 MHz UHF bands. Users will have the flexibility of aggregating up to the equivalent of 4 NB channels provided that spectrum-efficient technology is employed (e.g. 4-TDMA in 25 kHz). This approach will enable users to employ the most spectrally-efficient technology available, while causing the least amount of disruption to their own and other existing operations. This channeling plan establishes a channelization framework that is flexible and technology-neutral.

PR Docket 92-235. Adopted June 15, 1995

The intent was that wireless vendors, and consumers, would naturally migrate toward improved narrowband technology without compulsion. After a decade of public comment and under pressure from a diverse constituency

the FCC finally ruled that migration to narrowband was not moving fast enough to accommodate increasing demand for spectrum resources. In July 2003 the FCC mandated specific narrowband migration dates imposed in phases that extend out to 2018 for public safety communications systems.

FCC WT Docket 99-87 2nd R&O was officially published in the Federal register in mid July 2003 and became law in January 2004. In October 2004, however, the FCC issued a temporary “Stay” against the January 13, 2004 “wideband” licensing deadline.

http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-03-306A1.pdf

<http://www.apointl.org/frequency/narrowdeadline2.htm>

The major decisions in WT Docket 99-87 2nd R&O are as follows:

The FCC prohibits any applications for new operations using 25/30 kHz channels, beginning January 13, 2004. **(Temporary Stay)**

The FCC prohibits any modification of applications that expand the authorized contour of an existing station if the bandwidth for transmissions specified in the modification application is greater than 12.5/15 kHz, beginning January 13, 2004. **(Temporary Stay)**

The FCC will prohibit the certification of any equipment capable of operating at one voice path per 25 kHz of spectrum, *i.e.* equipment that includes a 25/30 kHz mode, beginning January 1, 2005.

The FCC will prohibit the manufacture and importation of any 150-174 MHz and 421-512 MHz band equipment that can operate on a 25/30 kHz bandwidth beginning January 1, 2008.

The FCC will impose deadlines for migration to 12.5/15 kHz technology for PLMRS systems operating in the 150-174 MHz and 421-512 MHz bands. The deadlines are January 1, 2013 for non-public safety systems and January 1, 2018 for public safety systems.

WT Docket 99-87 2nd R&O also seeks comment on whether the equipment certification provision in the current rules is sufficient to promote migration to one voice path per 6.25 kHz bandwidth, or equivalent technology or whether migration to 6.25 kHz bandwidth or equivalent technology should be mandatory.

Recommendation

While the FCC has provided a “narrowband” migration path that allows 25/30 kHz “wideband” channel operation on existing VHF/UHF radio channels until January 2013 for non-public safety entities, and January 2018 for public safety systems, wireless users should understand the practical limitations involved and make plans for migration to narrowband channels much sooner.

The deadline for 25/30 kHz licensing has been extended under a temporary “Stay” against the January 13, 2004 deadline, but the FCC will likely impose a new deadline sometime in late 2004.

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Equipment manufacturers face a January 2005 deadline under which wireless equipment operating in the VHF/UHF bands must be capable of 6.25 kHz narrowband channel utilization.

Manufacturers, and vendors, meet another deadline on January 2008 after which they can no longer sell new wireless equipment capable of operating in a 25/30 kHz channel.

From a practical standpoint existing 25/30 kHz radio systems operating in the VHF/UHF spectrum below 512 MHz are no longer viable after the January 2008 deadline.

Agencies should immediately begin licensing narrowband channels to replace existing 25/30 kHz radio channels.

Agencies should plan to migrate all wireless operations to at least 12.5 kHz narrowband channels by no later than January 2008.

Agencies should add narrowband channels to existing operations and re-assign specific operations to those new channels as radio equipment is replaced with equipment capable of narrowband channel operation.

Agencies should assign an individual in each department to inventory existing equipment and identify radios that are not capable of at least 12.5 kHz narrowband operation. All wireless equipment incapable of narrowband operations should be replaced by no later than January 2008.

Reference

FCC WT Docket 99-87 2nd Report & Order
http://hraunfoss.fcc.gov/edocs_public/attachmatch/FCC-03-34A1.pdf

Industrial Telecommunications Association.
<http://www.ita-relay.com/>

American Mobile Telecommunications Association
<http://www.amtausa.org/>

Public Safety Wireless Network
<http://www.pswn.gov/>

PCIA
<http://www.pcia.com/>

APCO
<http://www.apco911.org/frequency/>